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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,437	10/31/2003	Homa Afjeh	08350.2197-00	7759

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EXAMINER

CHANG, CHING

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 05/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/697,437

Applicant(s)

AFJEH ET AL.

Examiner

Ching Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. ***Claims 1, 12-13, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Takizawa et al. (US Patent No. 4,258,671).***

Takizawa discloses an engine valve actuation system and a method of using it, comprising: a block defining at least one cylinder and a cylinder head having at least one intake passageway leading to the at least one cylinder (See Col. 2, line 45 through line 57; Fig. 1); at least one intake valve (7) moveable between a first position to prevent a flow of fluid through the at least one intake passageway (5) and a second position to allow a flow of fluid through the at least one intake passageway; a cam assembly (41) connected to the intake valve to move the intake valve between the first position and the second position; and an electromagnetic actuator (43) configured to selectively modify a

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timing of the intake valve in moving from the second position to the first position; the said method includes controllably moving a coupled armature (46) and core (45) of the electromagnetic actuator between a first position and a second position.

3. ***Claims 1, 12-13, 17, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Weber et al. (US Patent No. 6,688,280).***

Weber discloses an engine (110) valve actuation system (214) and a method of using it, comprising: a block (111) defining at least one cylinder (112) and a cylinder head (211) having at least one intake passageway (208) leading to the at least one cylinder; at least one intake valve (218) moveable between a first position to prevent a flow of fluid through the at least one intake passageway and a second position to allow a flow of fluid through the at least one intake passageway; a cam assembly (232, 234, 236) connected to the intake valve to move the intake valve between the first position and the second position; and an electromagnetic actuator (238) configured to selectively modify a timing of the intake valve in moving from the second position to the first position; wherein the electromagnetic actuator includes a solenoid coil and an armature coupled with a core, the armature and the core being movable together relative to the solenoid; further including a pivotable rocker arm (226) operably coupling the cam assembly with the intake valve; wherein the core includes an end configured to selectively engage the rocker arm opposite to the intake valve; further including a controller (244) configured to move the armature and the core between a first position and a second position; wherein the controller is configured to apply a first current to the solenoid coil to move the armature and the core from the first position to the second

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position to engage the rocker arm to modify the timing of the intake valve; wherein the controller is configured to apply a second current to the solenoid coil to move the armature and the core from the second position to the first position to disengage from the rocker arm, the second current being opposite to the first current (See Col. 4, line 61 through Col. 6, line 47; Col. 9, line 59 through Col. 11, line 6).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

**4. *Claims 1, 12-13, 17, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Hara et al. (US Patent No. 6,257,182).***

Hara discloses an engine valve actuation system (24) and a method of using it, comprising: a block defining at least one cylinder (See Figs. 1 and 8) and a cylinder head (21) having at least one intake passageway (22) leading to the at least one cylinder; at least one intake valve (23) moveable between a first position to prevent a flow of fluid through the at least one intake passageway and a second position to allow a flow of fluid through the at least one intake passageway; a cam assembly (56, 57) connected to the intake valve to move the intake valve between the first position and the second position; and an electromagnetic actuator (24) configured to selectively modify a

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timing of the intake valve in moving from the second position to the first position; wherein the electromagnetic actuator includes a solenoid coil (31, 32) and an armature (30) coupled with a core (38), the armature and the core being movable together relative to the solenoid; further including a pivotable rocker arm (59b) operably coupling the cam assembly with the intake valve; wherein the core includes an end configured to selectively engage the rocker arm opposite to the intake valve; further including a controller (40) configured to move the armature and the core between a first position and a second position; wherein the controller is configured to apply a first current to the solenoid coil to move the armature and the core from the first position to the second position to engage the rocker arm to modify the timing of the intake valve; wherein the controller is configured to apply a second current to the solenoid coil to move the armature and the core from the second position to the first position to disengage from the rocker arm, the second current being opposite to the first current; wherein the controller is configured to apply a third current to the solenoid coil to move the armature and the core from the first position to the second position to engage the rocker arm to slow a closing velocity of the intake valve (See Col. 7, line 65 through Col. 11, line 55; ABSTRACT).

5. ***Claims 1, 12, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Aoyama et al. (US Patent No. 6,647,935).***

Aoyama discloses an engine valve actuation system (20, 40) and a method of using it, comprising: a block (4) defining at least one cylinder (5) and a cylinder head

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having at least one intake passageway leading to the at least one cylinder (See Figs 1-2); at least one intake valve (1) moveable between a first position to prevent a flow of fluid through the at least one intake passageway and a second position to allow a flow of fluid through the at least one intake passageway; a cam assembly (24) connected to the intake valve to move the intake valve between the first position and the second position; and an electromagnetic actuator (22, 42) configured to selectively modify a timing of the intake valve in moving from the second position to the first position.

6. ***Claims 1, 12, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Uehara et al. (US Patent No. 6,647,935).***

Uehara discloses an engine valve actuation system (1) and a method of using it, comprising: a block defining at least one cylinder and a cylinder head (s) having at least one intake passageway leading to the at least one cylinder (See Figs 1-2); at least one intake valve (11) moveable between a first position to prevent a flow of fluid through the at least one intake passageway and a second position to allow a flow of fluid through the at least one intake passageway; a cam assembly (15, 17, 23) connected to the intake valve to move the intake valve between the first position and the second position; and an electromagnetic actuator (34, 35) configured to selectively modify a timing of the intake valve in moving from the second position to the first position.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. ***Claims 2-11, 14-16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weber (as applied to claims 1, 12, and 17 above) in view of Sturman et al. (US Patent No. 5,720,261).***

Weber discloses the invention, however, fails to disclose the electromagnetic actuator being a latching solenoid actuator.

The patent to Sturman on the other hand, teaches that it is conventional in the art of a valve controller system, to utilize a controller (See Figs. 8-20) with a latching solenoid actuator (118, 162) to control a valve movement.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the latching solenoid actuator as taught by Sturman in the Weber device, since the use thereof would provide an improved engine valve actuation system.



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9. ***Claims 2-11, 14-16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara (as applied to claims 1, 12, and 17 above) in view of Sturman et al. (US Patent No. 5,720,261).***

Hara discloses the invention, however, fails to disclose the electromagnetic actuator being a latching solenoid actuator.

The patent to Sturman on the other hand, teaches that it is conventional in the art of a valve controller system, to utilize a controller (See Figs. 8-20) with a latching solenoid actuator (118, 162) to control a valve movement.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the latching solenoid actuator as taught by Sturman in the Hara device, since the use thereof would provide an improved engine valve actuation system.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

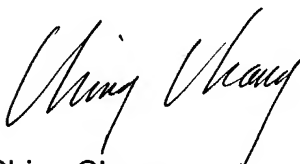
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ching Chang whose telephone number is (703)306-3478. The examiner can normally be reached on M-Th, 7:00 AM -5:00 PM.

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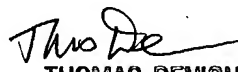
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (703)308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner



Ching Chang



THOMAS DENION  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700